REPORT OF A CASE OF IMPACTED URETHRAL CALCULUS.[1]

By ORVILLE HORWITZ, M.D.,

OF PHILADELPHIA,

CLINICAL PROFESSOR OF GENITO-URINARY DISEASES, JEFFERSON MEDICAL COLLEGE;
PROFESSOR OF GENITO-URINARY SURGERY, PHILADELPHIA POLYCLINIC;
SURGEON TO THE PHILADELPHIA HOSPITAL.

THE case herewith reported is of interest to the profession from its rarity; a stone originating in the urethra being a very unusual occurrence. It is believed that the alkaline are the only variety which form in that region; their usual location is directly behind tight strictures, in cavities left by abscesses, or in follicles with dilated mouths.

Referring to the literature of the subject, I find that Block removed a stone from the urethra of a patient which had been carried in that position for twenty-eight years. Keys reports a case in which he found five phosphatic calculi. Pulido removed a stone from the scrotum of an individual which weighed twenty-three ounces. A urethral stone removed by Rotelot weighed sixty grammes. Similar cases, the calculi, however, being of smaller dimensions, are reported by Graefe, Ulecia, Civiale, Voillemier, Camper, Maigret, Heath, and Boutelle. Dr. John H. Brinton states that on one occasion, while performing a perineal section for the relief of a stricture of the urethra, he encountered a large-sized stone in the perineum. While making a post-mortem examination, Dr. W. L. M. Coplin also came across a stone in the perineum, the existence of which had not been suspected before death.

The history of the case that I have to present is briefly as follows:

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The man was a laborer, forty-five years of age; admitted to the Jefferson Hospital on October 17, 1894. He complained of great difficulty in passing water; all the urine coming through a fistulous opening in the scrotum; none passing through the urethra. He was subject to frequent attacks of retention of urine, which were relieved by placing himself in different positions, such as assuming the knee-chest, or by lying on his side or back. He was anæmic, much emaciated, and had the appearance of one exhausted by prolonged suffering.

He stated that six years previously he had fallen from a ladder, striking his perineum by coming in contact with a projecting beam. At the time he experienced a dull, sickening pain in the region of the perineum; the parts becoming swollen and tender. Shortly afterwards he found it was impossible to pass his water, whilst at the same time blood was slowly oozing from the meatus. He was put to bed, a catheter was passed, and the water drawn off. The instrument was retained in place for several days. Two or three months after this he began to be troubled with a frequent desire to micturate, accompanied by great difficulty in starting the stream; these symptoms gradually increased in severity until finally it was with the most difficulty that the contents of the bladder could be evacuated. An abscess formed at the peno-scrotal junction, which was lanced; after which the urine passed both by the urethra and by means of a fistulous tract which had resulted from the abscess.

As time went on the amount of urine passed through the urethra grew gradually less in quantity, until, finally, within a few months previous to his admission to the hospital, the entire contents of the bladder were voided through the fistula.

When first seen, the skin in the region of the scrotum and thighs was inflamed and excoriated; the result of being constantly bathed in urine. A fistulous opening existed below the left testicle, an inch to one side of the medium raphé. The perineum was thickened and distended, and was occupied by a nodular mass about the size of a lemon. A full-sized instrument was readily inserted as far as the bulbous portion of the urethra; beyond this point not even a filiform could be made to pass.

On examining the fistulous opening it was found blocked by a gritty substance, which, on being removed by means of a small ear-scoop, proved to be bits of phosphatic calculi. The patient stated

that he frequently passed small pieces of stone through the opening. A flexible probe was inserted into the canal, which was arrested by encountering a large stone seemingly located in the membranous portion of the urethra. The patient was suffering from retention of urine at the time; the bladder being distended far above the pubis. After gently tapping the part and sounding with a probe, in order to get an idea of the size and density of the stone, the urine began to flow freely through the opening, carrying with it fragments of calcareous matter.

The urine was alkaline, very offensive, ammoniacal, and loaded with pus and phosphates. A chemical examination showed that it contained albumen. The microscope revealed the presence of blood and pus-corpuscles. The amount of urea was far below normal. The urine constantly dribbled through the fistulous opening, so that the amount that passed in the twenty-four hours could not be collected, and hence could not be determined. The length of time from which the patient had suffered from urethral obstruction, his broken-down constitution, and the condition of the urine, led to the surmise that the case was complicated with chronic inflammation of the bladder and surgical kidneys.

Under the circumstances it was determined to give the patient rest, and attempt to improve his general condition by means of good food, stimulation, tonics, and the administration of such remedies as would have a tendency to antiseptize the urine.

After two weeks' treatment, during which time he suffered from repeated attacks of retention of urine, it was decided that medical treatment had done all that could be hoped for, and that any further improvement could only be effected by removing the stone which obstructed the passage of water.

Taking his general condition into consideration, it was thought inexpedient to do more than remove the stone, and by this means drain the bladder; for it was naturally inferred that the stricture was in front of the calculus, and that when this impediment was removed that the attacks of retention would cease. Should he recover from the first operation, and his general health improve, an operation on the stricture would be performed.

After being placed under the influence of chloroform he was brought before the class and put in the lithotomy position. An incision was made extending from the fistulous opening in the scrotum along the perineum almost up to the sphincter ani. While

making the cut an abscess was opened, which discharged a large quantity of most offensive pus.

The stone was found to occupy the membranous portion of the urethra extending as far forward as the bulb, filling up the lower portion of the scrotum. Although movable, it seemed to be attached in certain portions. It was found impossible to draw it through the wound; it was broken into several fragments, which were readily evacuated by the means of a lithotomy scoop.

The urethra behind the stone was found to be patulous. The canal in front of the stone was completely closed and no instrument could be passed through it into the perineal wound. The parts were irrigated with mercuric chloride solution, a rubber drainage-tube inserted, and then dressed with antiseptic iodoform gauze.

For the first ten days after the operation the patient's general condition rapidly improved; after that he began to suffer from irregular chills, followed by slight fever. The tongue became red and glazed; there was nausea and vomiting, which was followed by an uncontrollable diarrhœa. This condition was attended with suppression of urine, delirium, and coma; and finally ending in death.

A post-mortem examination was made eighteen hours after death. The body was emaciated; the rigor mortis was unusually well-marked. The lungs, heart, and abdominal viscera were normal, with the exception of the kidneys. That of the left side was simply a large sac filled with pus; whilst that on the right side was much enlarged and contained distributed through it numerous small abscesses. Both ureters were enormously thickened; especially the left, which measured forty-one millimetres in circumference. The bladder was chronically inflamed, atonied, and sacculated. The mucous membrane was covered with gelatinized pus, and in places had undergone superficial ulceration. The prostate gland contained a large abscess. The cavity which had contained the stone was lined with healthy granulations. The urethra from this point back to the bladder was free from obstruction; but at the seat of stricture, which was at the bulbous portion of the canal, it was completely obliterated.

It is interesting to study the presumed different pathological changes which must have taken place from the period when the stricture began to form up to the time of the patient's death. As

the stricture tightened the urethra back of the obstruction, no doubt, slowly dilated until it assumed the form of a pouch which contained urine, which was continually undergoing more or less decomposition. At the same time the mucous membrane lining this portion of the canal must have become inflamed, and then ulceration gradually taking place allowed the urine to infiltrate into the submucous tissue, which eventually gave rise to an abscess followed by a urethral fistula. In the mean time the calibre of the urethra at the seat of the stricture was becoming smaller and smaller, whilst there was a constant effort on the part of the bladder to force the urine through the ever contracting normal channel and through the new outlet. As the disease progressed the walls of the fistulous opening became indurated, making it more difficult for the bladder to expel its contents; and there must have always been more or less residual urine in that viscus, gradually giving rise to cystitis, followed in turn by inflammation of the ureters and the kidneys. The alkaline ammoniacal urine coming from the inflamed bladder, loaded with phosphates and gelatinized pus, settling in the urethral pouch back of the stricture, naturally precipitated the triple phosphates with other alkaline salts, which becoming agglutinized formed the nucleus of the stone.

Once started it daily increased in size by fresh deposits from the alkaline urine with which it was constantly bathed. In the mean time the urethral canal in front of the stone became completely obliterated.

From the knowledge gained from the post-mortem examination as to the exact condition of the kidneys it is probably fortunate that chloroform was the anæsthetic administered; for if ether had been employed it is very possible that death would have followed from suppression of urine almost immediately after the operation.

It seems therefore to have been wise to have attempted only to relieve the obstruction to the passage of the urine by removing the stone. For if an effort had been made to remove the stricture the operation would necessarily have been greatly prolonged; the additional shock and the length of time required to

keep the patient under the influence of the anæsthetic might have resulted in death. It is doubtful if complete obliteration of the urethra is ever met with except in traumatic stricture. Nineteen cases of complete obstruction of the canal have been reported by Tadriate; of these fifteen were located at the bulb, one at the suspensory ligament, two in the penile portion, and one three inches behind the meatus, and one followed injuries produced by bullet wound.